

CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. XIV

JANUARY, 1942

No. 1



WHO'S WHO

FIG. 1. Thor Methven Bock, co-author with
W. Taylor Marshall of "Cactaceae"



CACTUS AND SUCCULENT JOURNAL

Published and Owned by the Cactus and Succulent Society of America, Inc., Box 101, Pasadena, California. A monthly magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. Subscription \$3.00 per year. Foreign \$3.00 per year by international money order. Membership in the Cactus Society free with subscription. Mail application to SCOTT HASELTON, Editor, Box 101, Pasadena, Calif. Editorial Staff: THE ENTIRE SOCIETY. Entered as Second Class Matter at Pasadena, Calif., under act of March 3, 1879.

Vol. XIV

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No. 1

Liberty Hyde Bailey.....	David Fairchild	2
Preservation of Cactus Material.....	R. H. Peebles	3
Notes on Haworthias.....	J. R. Brown	10
Cascading Epiphyllums (Part III).....	Dr. Jacolyn Manning	12
Officers for 1942.....	Affiliated Clubs	14
Growth Characteristics of Cacti.....	Robert S. Woods	15
The Cactus and Succulent Club of Chicago.....	Mrs. Harry N. Osgood	15

LIBERTY HYDE BAILEY

An appreciation by DAVID FAIRCHILD

Among the thousands of monuments to our great men, few have been erected to those quiet people without whose influence and labors the landscapes around our houses, and those of our forests and mountains and streams, must have lost most of their beauty.

We cannot leave unhonored those great, forceful personalities who have built up, or preserved, those things of natural beauty on which our aesthetic natures feed, and without which there can be no high civilization, no world of beautiful imagination and peace.

It is with this idea of memorials and monuments in mind that I approach a proposal, a great opportunity I would rather call it, to build a lasting memorial to a man whose influence in the field of horticulture has been exerted upon our American life since the very beginning of agricultural education in this country, and to build it in his lifetime as an evidence of our affection and high regard.

His efforts to better country life, to conserve our forests, to improve our rural schools, to build departments of horticulture in our colleges, to stimulate plant selection and plant breeding, to teach landscape gardening for our homes and, through his Hortus and his Encyclopedias, to put within reach of all plant lovers the means of determining what species of plants they are working with and the available knowledge regarding them, have been herculean. All these activities of Prof. Bailey's long life have been recorded in biographical dictionaries, but these do not bring his career up to date, and even many of his friends are not aware that for almost ten years now he has been devoting most of his energies to a study of the palms.

And now Prof. Bailey is approaching his eighty-fourth year. His labors for American garden lovers are drawing to a close. The Directors of the Fairchild Tropical Garden, with which organization he has been associated since its inception and to which he has given his enthusiastic support, wish to recognize his countless gifts to the plant lovers of America by honoring him with a suitable memorial. At the same time they wish to impress upon the children and youth who see it the fact that there lived a man who saw clearly that unless we take care of the world of plants, our civilization cannot be the beautiful one of our dreams.

It seemed to them that it should be a living, growing monument, and they have decided that nothing could be more appropriate than to make in Professor Bailey's honor a great Palm Glade here on the shore of Biscayne Bay.

Those of us who have watched the growth of the large collections of palms already assembled here and who have witnessed the transformation wrought on the low lands bordering the Bay when the modern dredging machine and the landscape artist and the palm specialist combine their skills, know how beautiful the result can be.

In a few years we could have here a glade of tropical palms which would do full honor to Professor Bailey's memory and be a Mecca for thousands of garden lovers making pilgrimages to South Florida to see what tropical palms really are. These many visitors are familiar with the name of L. H. Bailey and, finding him honored here by a tribute to his passion for palms, would be impressed anew with the greatness of his contribution to the peace and beauty of the world.

Dr. Bailey is a figure of national and international importance and it is planned that this memorial shall be the gift of the greatest possible number of his friends and admirers. To this end it has been decided that no contribution shall be of more than one dollar. It is hoped that on Dr. Bailey's 84th birthday, March 15, 1942, the Palm Glade can be dedicated and an album be placed in his hands inscribed with the names of all those who feel indebted to his life's activities and have subscribed to the Glade.

Subscriptions can be made out to the Liberty Hyde Bailey Palm Glade and sent to the Fairchild Tropical Garden, Coconut Grove, Florida.

EDITOR'S NOTE: Dr. Bailey has been a member of the Cactus and Succulent Society of America since its inception and many of us have had the opportunity of knowing this man of a thousand diversified interests. Those who wish to be a part of this living memorial may contact your Society office or write direct to the Fairchild Tropical Garden. S. E. H.

TEN YEAR INDEX

Your back issues will be more usable if you have this 10-year cumulative index of 20,000 references. Mr. E. M. Baxter devoted a year's spare time to compiling this work. Most of the known plants are listed, as well as the names of people who have made cactus history these last ten years. Bound in cloth, 60 pages \$1.50 postpaid. Box 101, Pasadena, Calif.

CHECK LIST

California Cactus—Baxter	1.00
The Stapelieae (3 volumes)—White and Sloane	12.50
The Cactus Book—Houghton	2.25
Pronouncing Glossary—Marshall, Woods.....	3.85

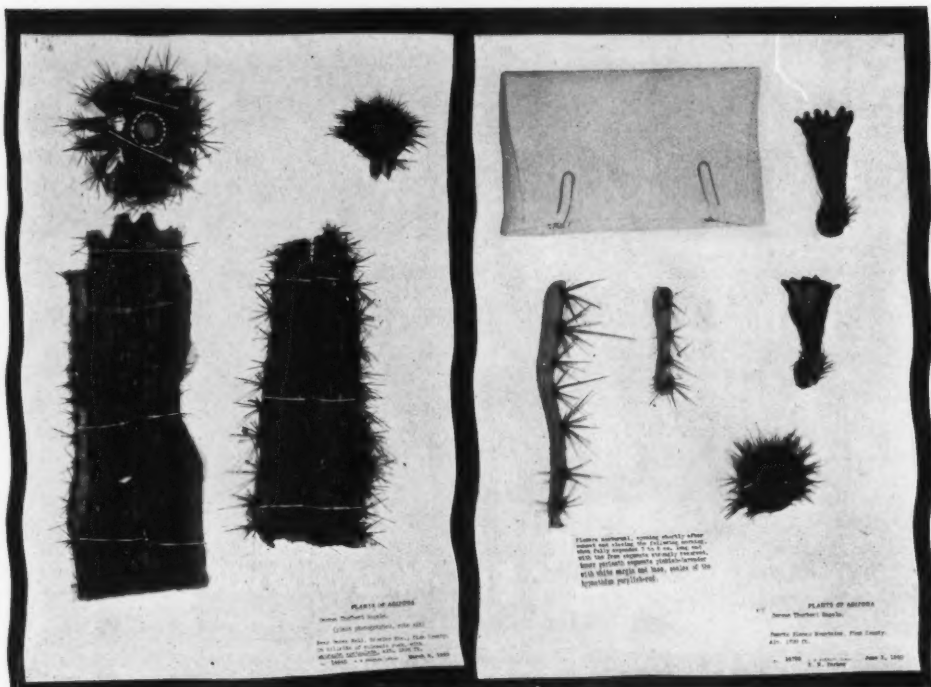


FIG. 3 (left). Vertical and cross sections of branches from the Organpipe Cactus, also immature fruit. The parts are fastened to the sheet with glue, dried under pressure, and with heavy linen thread. FIG. 4 (right). Organpipe Cactus. The cactus is represented by parts of ribs, (which show details of areoles and spines), flowers, and a fruit. All parts are glued and sewn to the sheet. The envelope contains additional sections of flowers and fruits.

parts not only provides material for scientific research but also adds much pleasure to the culture of cactus.

In this article the writer has endeavored to indicate, for the benefit of amateur collectors, some of the important features to be considered in collecting and preserving cactus. Unless otherwise stated, the methods described herein have been employed to advantage in the course of a study of the cacti native to Arizona. It should be understood, of course, that other methods can be used to accomplish similar results.

COLLECTING

A primary consideration in collecting plants for the purpose of furthering scientific knowledge is to obtain material and data that will suffice for a complete and representative permanent record.

In so far as a cactus collector is concerned, a garden of some sort is a necessary adjunct of his equipment, as it often happens that barren plants must be grown under cultivation in order to obtain the flowers, fruits, and seeds needed to make

complete specimens. The herbarium sheet shown in Fig. 2 was assembled in this way, as flowers, fruits and seeds were obtained at intervals from a plant of *Echinocactus johnsoni* Parry grown in a cactus garden at Sacaton, Arizona. Of course, if flowers or fruits are obtainable when a plant is found in its natural habitat it is desirable to put them in a plant press immediately, first splitting them vertically so they will cure quickly.

In the case of large cacti that grow slowly or do not thrive under conditions in the garden available to the collector it is desirable that as complete material as possible be obtained in the field. In order to do so, it is sometimes necessary to make a special collecting trip in the flowering or fruiting season of the particular species that is wanted. Figs. 3, 4, 5 and 6 show the results of a trip made especially to obtain representative material and photographs of the Organpipe Cactus (*Cylindropuntia echinocarpa* Engelm.).

Pictures of a plant in its natural habitat (Figs. 5 and 6), especially the large cacti, often add appreciable interest and value to the final record.

Photographs showing details can be made after a collecting trip is finished, as were those shown in Figs. 7 and 8. Plants that have flower buds when collected will develop flowers within a short time, and consequently it is possible to obtain photographs of the flowers before it is necessary to set the plants in a garden or convert them into herbarium specimens. This procedure was followed in the two collections of *Mammillaria arizonica* Engelm. illustrated in Figs. 7 and 8. Of course, on trips of long duration all such work has to be done in camp.

Immediately following is a list of equipment that has been found useful on collecting trips: plant presses, newspapers, blotters, tongs, large knife, paper bags in several sizes, pruning shears, prospector's or tile mason's pick, camera, and one or more cartons in which cactus material placed in paper bags can be kept in minimum space. An aneroid barometer is useful where the altitude cannot be estimated accurately, as in very mountainous regions.

The writer has found it convenient to carry a notebook, ruled in 4 or 5 vertical columns, in which may be entered the following essential data: collector's name, collector's number, date,

altitude, and locality. If all data are recorded in a notebook, then the specimen collected needs only its number for identification. Incidentally, the specimen always should carry the collector's original number. Space also may be provided in the notebook for miscellaneous notations relating to color of flowers, size of plants, number of stems and ribs, ecological and geological features of the habitat, etc.

PREPARATION FOR MOUNTING

A practicable method for preparing sections of large succulent parts is described, as follows: First, the stem is cut into vertical or cross sections, or both, in sizes small enough to go on a standard herbarium sheet. The pulp is removed with a knife or spoon. Enough tissue is left, however, so that the sections will not break easily or lose shape after they are dried. The sections may be allowed to dry for a time in the open, but only to the point when curling becomes noticeable. Drying during this period may be hastened by the generous use of salt on the exposed inner surface. The salt quickly becomes saturated with sap and must be replaced several times during the day. When the sections begin to curl the salt is removed and the sections are

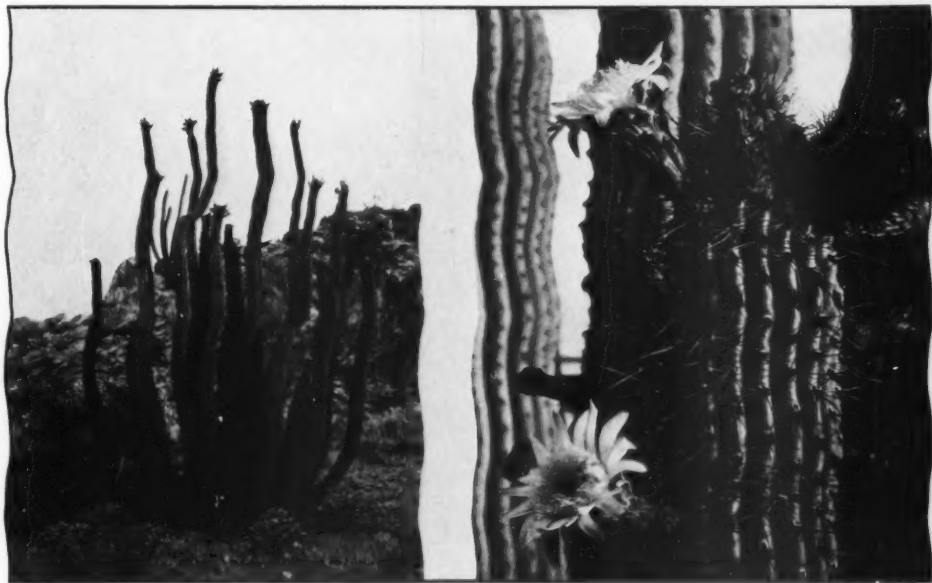


Fig. 5 (left). A representative specimen of the Organpipe Cactus in its natural habitat in Pima County, Arizona. This picture and the one shown in Fig. 6 were enlarged to 8x10 inches and mounted on herbarium sheets. In both cases the herbarium sheet bears a copy of the label shown on the sheet in Fig. 4. Fig. 6 (right). Flowering branch of the Organpipe Cactus. Near the top of the stem is a spiny fruit nearing maturity. The flowers are nocturnal. The picture was taken shortly after sunrise, June 3, 1940.

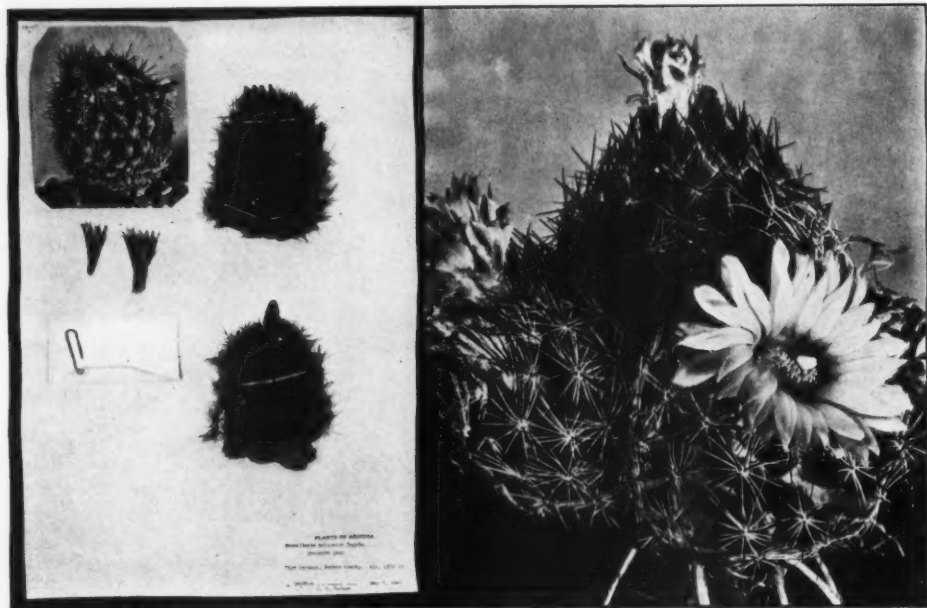


FIG. 7 (left). When collected on May 7, 1940, this plant of *Mammillaria arizonica* Engelm. had several flower buds. A flower opened 8 days later, at which time the plant was photographed indoors under artificial light. After the picture was taken the stem was split lengthwise, dried in a plant press and finally mounted on the herbarium sheet shown above. FIG. 8 (right). The photograph shown above was taken at Sacaton, Arizona, June 17, 1937, 7 days after this plant of *Mammillaria arizonica* Engelm. was collected in northern Apache County, Arizona. The plant is now being grown in a cactus garden for further observation.

placed in a plant press so they will finish drying under pressure.

Small parts such as flowers and fruits are split vertically and immediately placed in a press. Salting is undesirable, and preliminary drying unnecessary. An advantage of sectioning flowers is that the internal structure is readily accessible after the flowers are mounted or placed in an envelope on a herbarium sheet.

Cacti with slender or very thin joints cure well without being split. This statement applies to such species as *Opuntia leptocaulis* DC., *O. Kleiniae* DC., *O. arbuscula* Engelm. and *O. arenaria* Engelm.

Herbarium specimens are dried under pressure in order to prevent shriveling and to preserve natural color. A plant press can be made of plywood, very stiff heavy cardboard, or wood slats, a number of heavy blotters, and two strong straps equipped with friction buckles. A good size for both press and blotters is 12x17 inches. A press with sides constructed of wood slats is shown in Fig. 9.

Very little pressure is required when material

is first put in a press, but as drying proceeds it is necessary to increase pressure. All pressure that is ever needed can be applied by drawing up the straps on the press.

Best results are obtained when moisture is removed from tissue quickly. Moisture is removed by replacing wet blotters with dry ones. It is well to remember that the sections are to be mounted on flat herbarium sheets, and therefore large parts should not be allowed to dry in curved shape. Curving can be prevented by inserting a few pieces of heavy stiff cardboard at intervals among the blotters inside the press.

A box or small room that can be heated to temperatures ranging from 150° to 165° Fahr. is a convenience in curing succulent material. The time required for curing is greatly reduced from that needed to cure specimens in a cold press, and the chance of discoloration lessened. The most succulent specimens that we have handled have cured in four days at a temperature of approximately 165° Fahr. However, when dehydration is effected at such high temperatures the blotters at first have to be changed every hour

or so, otherwise the specimens will suffer serious damage. If a heated compartment is not available a cold press can be improved by the use of hot blotters, even if merely warmed in sunshine. Blotters can be dried and presses warmed on wall radiators or by means of small room heaters.

It is customary to place specimen material between folded sheets of newspaper which are inserted between the blotters in a plant press. The many advantages of this procedure do not need to be enumerated.

MOUNTING SPECIMENS ON HERBARIUM SHEETS

Specimens are fastened to herbarium sheets in many different ways. One of the most popular methods for light specimens is to attach the parts with small strips of gummed cloth (Fig. 10). Another common method is simply to glue all parts to the sheet. However, most cacti are too heavy for glue alone, and heavy parts also will loosen if held only by cloth strips. The specimen of *Opuntia Loomisii* Peebles shown in Fig. 10 is fastened by means of glue and staples, the latter

inserted with a paper stapling device from which the base had been removed. Stapling is objectionable because it sometimes results in breakage of fragile parts. The tuberous root of the *Opuntia* is further secured with a strip of gummed linen, but heavy linen thread would have been better.

A satisfactory way of attaching cactus is shown in Fig. 3. The heavy stem sections of the Organpipe Cactus were first thoroughly glued to the sheet, heavily weighted for 12 hours until the glue had set, and then were sewn to the sheet with carpet thread. The exposed thread on the back of the sheet is held firmly in place with strips of gummed paper. Ordinary linen carpet thread is excellent for sewing heavy specimens to herbarium sheets.

Herbarium labels wrinkle less if mucilage is brushed on only along the margins instead of the entire back of the labels.

Photographs can be permanently mounted on herbarium sheets in various ways. An easy method that requires no skill is to slip the corners of a photograph through slits in the herbarium



FIG. 9. Preparing cactus specimens for mounting on herbarium sheets. The spiny section of a branch from the Organpipe Cactus is held with tongs while the remaining pulp is scraped out with a spoon. In foreground, knife, scissors, 2 pieces of pulp cut out of stem sections, and sections of *Echinocereus Engelmannii* (Parry) Rümpler, the vertical section filled with salt in order to hasten extraction of the sap. Propped up in middle foreground are fruits of *Cereus Greggii* Engelm., sections of *Mammillaria microcarpa* Engelm., pruning shears, joints of *Opuntia Wrightiana* (Baxter) Peebles, and piece of stem and cross section of *Cereus Thurberi* Engelm. Toward background, a pad of *Opuntia Engelmannii* Salm-Dyck cut into 2 vertical sections, section from a rib of the sahuaro (*Cereus giganteus* Engelm.), young branch of sinita (*Cereus Schottii* Engelm.) with one rib removed, joints of *Opuntia basilaris* Engelm. & Bigel. and *O. gilvescens* Griffiths. Background, closed plant press, tile mason's pick, sack of salt, paper bag containing cactus material, and at extreme right an open plant press ready for use.



FIG. 10. Firmly glued to the herbarium sheet, this specimen of *Opuntia Loomisii* Peebles is also held with staples. The tuberous root is secured with a strip of gummed linen. Heavy linen thread has been found more satisfactory for this kind of material than either staples or cloth strips.

sheet, as shown in Fig. 7, fastening the corners on the back of the sheet with bits of gummed paper.

When a good representative photograph is available it can be enlarged and placed on a herbarium sheet, thus by itself making a permanent record for deposit in a herbarium. Such sheets are thin and take up very little space. Photographs are not of much value in herbaria unless they bear labels giving all data pertaining to the original collection.

With the exception of herbarium paper, the equipment and supplies required in mounting cactus (Fig. 11) are inexpensive and not hard to obtain: tongs, glue, mucilage, forceps, needle, carpet thread, small white envelopes, and herbarium paper. Herbarium paper can be obtained in various grades and prices; the standard size is $11\frac{1}{2} \times 16\frac{1}{2}$ inches.

OTHER SUCCULENTS

Some of the technic described for handling cactus can be applied to other succulents. Many succulents, such as the stonecrops (*Crassulaceae*) die very slowly, even in a plant press. A few minutes' immersion in water brought nearly to the boiling point kills tissue, and specimens so treated cure in a few days. The same treatment can be given very succulent flowers, such as those of the yuccas, but the results are not always satisfactory.



FIG. 11. Some of the articles used in mounting cactus specimens. The roll with the rubber band around it is gummed linen, but strips of gummed cloth have not been found satisfactory in mounting heavy cactus specimens.

PRESIDENT'S MESSAGE

For the past four years we have derived the benefits of being led by one whose knowledge and wisdom have guided us far in our search for a better understanding of cacti and succulents. I refer to my friend and your friend, and the friend of all plant lovers "Bill" Marshall. It has been my good fortune to be in close contact with Bill during his Presidency and yet, even I, can tell you of but a few of his many achievements.

Despite his busy day, he is ever willing to show visitors through his garden and to discuss plants well into the night. And, too, many a garden throughout the country boasts of cuttings and plants from this good-hearted man's personal collection. The volume of his personal correspondence would gladden the heart of many a movie star.

One of the first associations I had with Bill was as a student in one of his study groups. It was in these classes that so many of us who live in the proximity, obtained our groundwork in cactus lore. Then, when the local personnel had been taught enough to stand on its own feet, our far-sighted instructor, realizing that he was reaching but a minority of those who needed and craved this information, published his notes in pamphlet form (*A Contribution for a Better Understanding of Xerophytic Plants*) and made them available to Affiliate Societies and later, to the entire membership.

There were but a few Affiliate Societies when our past-president came into office and these were sparsely scattered throughout the country. They were, at that time, required to have at least five members in the National Society to become affiliated. Our friend, with his ever present foresight, started the machinery rolling to let the bars down on this restriction, with the result that we now have between thirty and forty Affiliates, many of which have, after becoming organized and engrossed in the subject, far exceeded the quota of five National Members.

In this hobby of ours, no salaries are paid. The organization work, the exploration work, and all the other phases of effort that go to further the interest and increase the knowledge of cacti and other succulents have gone unrewarded. So great was President Marshall's appreciation for the interest and help of his fellow members that he initiated proceedings to create Fellowships, making them available to those members who so freely contributed of their time and efforts and entitling them to use the title, Fellow of the Cactus and Succulent Society, F.C.S.S.

Early in 1939 it was decided that the Society had grown so national in scope that it would dispense with monthly meetings, shows, etc., leaving such social activities to the many Affiliate Societies spread throughout the country. However, the previous year, the Tenth Annual Show was held at Pasadena, California, and it was definitely the ceaseless work of the silent partner, our modest President, that assured its success.

Four years ago, there was a debt of the Society's of many years standing, that our conscientious leader looked upon as an almost personal obligation (although he was in no way connected with the contracting of the debt), and with no Society income, it was he who devised ways and means of clearing up this deficiency.

Mr. Marshall always has been, and always will be, a strong advocate of desert conservation. He has done much toward the preservation of species through his contact with local authorities, his correspondence with State and Federal authorities, and his encouragement to promote protective laws in State Parks and National

Monuments. Many times, in the JOURNAL pages, he has explained the advantages of nursery-grown stock. This, I can assure you, was not a mere plug for the Commercial men dealing in this class of merchandise, but the result of years of experience in growing cacti.

A great work that Mr. Marshall undertook and accomplished, in collaboration with Dr. R. W. Poindexter and Dr. Elzada Clover, was the preparation of the list (cacti and succulent division) of Standardized Plant Names. Much correspondence and initiative was necessary to have this list prepared for publication in as up to date and complete a manner as possible.

You all know of your President's success in planning and staging the First Convention of the Cactus and Succulent Society of America. With no precedent to follow, he planned a diversified program, foresaw and overcame all emergencies, and created enough general interest to draw ten per-cent of our total membership to St. Louis.

Because of his correspondence in nearly every country where cacti grow and because of his personal exploration work in the United States, Lower California, Mexico, and the West Indies, I know of no one more qualified to bring the knowledge of cacti up-to-date. This he has done in his new book "Cactaceae." The artistic yet accurate brush drawings by Thor Methven Bock, and the publishing in the inimitable style of Scott Haselton, is superseded only by the clear, concise text by W. Taylor Marshall.

This falls far short of being a complete list of "Bill" Marshall's achievements during his term of office. Other individuals could tell you of as many more. He has given freely of his time with no thought of remuneration. But I know that he feels amply repaid in the knowledge that he has helped his fellow members. A salute to a grand person.

ERVIN STRONG.

Officers of Cactus and Succulent Society of America, 1942

President: Ervin Strong.

Vice-President: Mrs. Neff K. Bakkers.

Secretary: Clarence Clum.

Treasurer: Dr. R. W. Poindexter.

Board of Directors: John Akers, Edgar Baxter, Thor M. Bock, Carl Brassfield, Mrs. Frank Cariss, Graham Heid, R. W. Kelly, George Lindsay, Mrs. Maybelle Place, Boyd L. Sloane, and Mace Taylor, Jr.

OAKLAND AFFILIATE

A Christmas party, celebrating the sixth anniversary of the Oakland Cactus and other Succulent League, was held on December 2nd, at the regular meeting place, 5161 Trask Street, in Oakland, California.

An alcove with indirect lighting served as a background for a display of some very beautiful plants. The annual plant exchange was conducted from the well decorated Christmas tree.

A very interesting talk was given by Mr. Albert Tresler, relating some of the observations which he and Mrs. Tresler made while on a trip across the northern section of the United States.

Refreshments were served buffet style from a beautifully arranged table. The members who served on the committees can feel that their efforts were well appreciated, as the meeting was a huge success as to program, decorations and refreshments.

MRS. WILSON NEWLON, 981 Miller Ave., Berkeley.

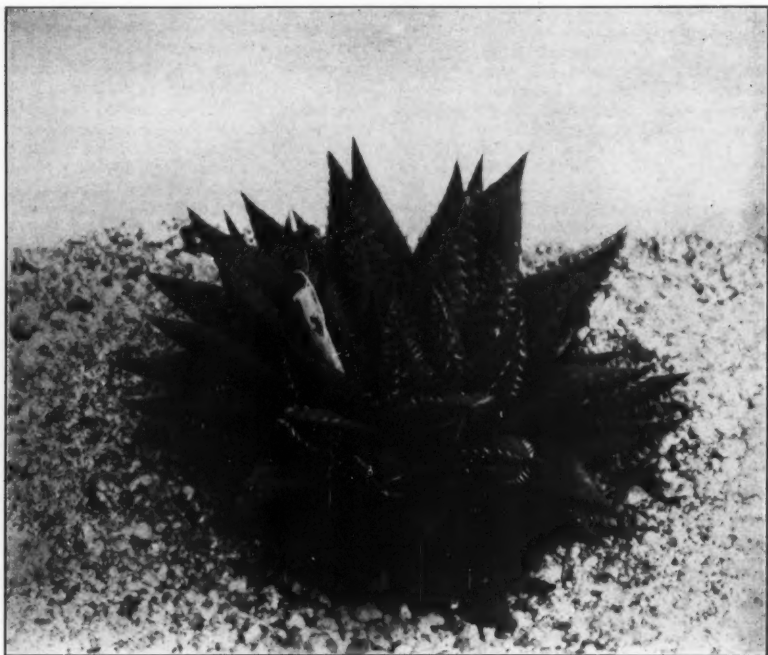


FIG. 12. *Haworthia submaculata* Poelln. nat. size.

Notes on Haworthias

By J. R. BROWN

Haworthia submaculata, Poelln. in Desert Plant Life XI (1939) 194. photo.

Plant stemless, about 6 cm. in diam., slowly proliferous from or near the base. Leaves numerous, more or less erect, lightly incurved at tip, ovate-lanceolate, acuminate, dark grey-green, not shining, tinged with red in the sun, 3-4 cm. long, 7-15 mm. wide, somewhat convex in the upper part, often with an obscure, slightly raised, lengthwise middle line or instead, with a few inconspicuous tubercles, back of leaves very convex, with an oblique keel almost to the base, often with a shorter secondary keel towards the margin, both sides of leaf with many, slightly darker, obscurely united lengthwise lines, face of leaves, especially towards the tip, with a few lighter flecks, back with more numerous, oblong or roundish, rather large, lighter flecks, these sometimes more or less prominent and confluent, teeth on the margins and keels white, pellucid, about 1 mm. long in the upper part, shorter below, very broad and usually confluent at their bases, the teeth terminated with a very minute, colorless tip. The whitish, pellucid terminal

bristle is 1-3 mm. long.

Locality: The vicinity of Worcester, Swellendam, Caledon, and Bredasdorp.

The photo illustrating this *Haworthia* shows a plant which had been growing under glass for several years and which is 8.5 cm. in diam., and shows the appearance of a single rosette under very favorable conditions, a year or two later this rosette is now 6 cm. in diam. and with its three offsets, which are 4-5 cm. in diam., forms a small dense cluster and all the leaves are now erect.

This *Haworthia* was placed in the sect. *Setato-Araneae* (Berger) Poelln., but would seem, due to the leaf shape, the more or less distinctly anastomosing lines, and the flowers, to belong to the sect. *Muticæ* Berger. The flowers are quite large and somewhat similar in appearance to the flowers of *Haworthia Haageana* Poelln. and *Haworthia subregularis* Bak.

As is the case with most of the spp. in the sect. *Muticæ* the markings and anastomosing lines become more or less obscure during the resting period, but the lighter spots of this sp.

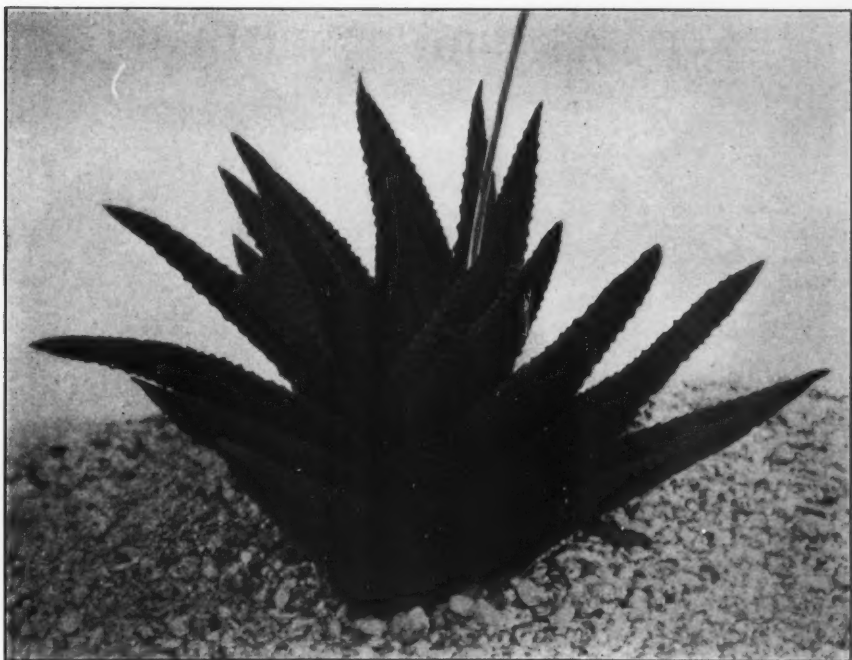


FIG. 13. *Haworthia tuberculata* var. *subexpansa*, Poelln. nat. size.

become quite prominent during the period of growth and the leaf color is a brighter green. This is probably the most markedly toothed *Haworthia* of the sect. *Muticæ* Berger.

***Haworthia tuberculata* var. *subexpansa* Poelln.**
in Cact. Journ. VII (1938) 56. photo.

Plant with fewer and more spreading leaves than in the type. Leaves to 7 cm. long, gradually acuminate, concave on the face with tubercled margins and keels, and only slightly curved laterally.

Locality: Type locality, Ladismith.

This form of *Haworthia tuberculata* Poelln. has the same brownish-green color, including the tubercles, as the type.

The photo illustrating this *Haworthia* shows a plant which has been long in cultivation, and the whitish appearance of many of the tubercles is due to reflected light from the shining tips of the tubercles. The leaves never assume the more or less closely incurved appearance of the other forms of this *Haworthia*. This plant after being outdoors for three years since the photo was taken has again assumed its natural appearance, the leaves are now fewer and slightly more erect and the tubercles are slightly larger and more crowded.

CARE OF CACTI

Many articles, filling many pages have been written on the care and culture of cacti. I will add my experiences with seedlings.

Satisfactory results with various soil mixtures and under various climatic conditions have been enjoyed by many growers of cacti. However, what is successful in one place will often fail to give good results in another.

I live in the interior valley which is hot and dry in the summer. My plants must receive a different treatment than those grown in a moist climate. I have better results when I use a heavy soil mixture which will retain the moisture for a time, than when I use the usual porous mixture generally recommended for cacti. The cactus plants will exist on very little water and food, but good care will repay, tenfold.

Some years ago I paid my first visit to Bill Weston's garden at Tracy, Calif. I was impressed by the healthy condition of his plants. He told me that the beds in which he grew the cacti were made from the sand taken from the railroad cars in which cattle had been shipped. The sand contained about 25 per cent cow manure.

Since that visit I have been using a soil mixture consisting of one part garden loam, one part sand, one part cow manure and one part leafmold or garden compost. During the summer I give the plants a dose of liquid manure, once a month.

My grown plants and my seedlings alike are fine and healthy.

G. W. VAN DER BUNDT, Antioch, Calif.
Member of Oakland Cactus and Succulent League.

The Cascading Epiphyllums

PART III

By JACOLYN MANNING, M.D.

HELIOCEREUS SPECIOSUS IGNESENS

When Robert Chambers' popular story *The Incandescent Lily* appeared some years ago, the author had oriented his hero—in search of a traditional illuminated flower—quite unnecessarily, to far Cathay. There was then an American native savage beauty blooming freely "on the pedregal near the City of Mexico" [B. & R. Vol. II, Pg. 128], which had sufficient candle power to set the *Cereus* World on fire and ignite a flame in the fragrant heart of snow-white vestal virgins of the Equatorial *Epiphyllums*.

This discreetly-armed blazing-red son-of-the-Sun—for *heliocereus* is Greek for sun-cereus—dwelt so high and far from the milk-white moon cercen of the Central American jungle, he had apparently not visited them, until some curious hybridist, about 1830, pollinated the tree-climbing, night-blooming *Selenicereus grandiflorus*, producing the splendid hybrid *Heliocereus speciosissimus grandiflorus*.

When the flowers of this hybrid were seen their great size and gorgeous color sent the gardening world quite wild. The lid of a pandora paintbox had blown off! Those who had access to *Heliocereus* sp. began crossing in every attainable white *Cereus*, and then crossing back the hybrids to the original firebrand. Long lists of hybrids and quadrinominals of the early 1800's are still extant.

One wise hybridist, realizing the flaming color-potency released, named his hybrid *Heliocereus* sp. *ignescens*, a name of such exactness we have adopted it in this article, naming the parent from the son. We will now use it as a justified and distinguished name to discriminate between this celebrity and his four blood brothers.

The *Heliocereus* family [Genus 23, B. & R. Vol. II, page 2], has five members of which four have brilliant red flowers. They are native to Mexico, Guatemala and parts south. The bloom of *H. elegantissimus* is scarlet. That of *H. Schrankii* is dark red. The color of flower of *H. cinnabarinus*, found blooming on the rocky sides or pedregal of the volcano of Santa Maria, in Guatemala, at an altitude of ten thousand feet, seems to be indicated by its name; it is said to be very beautiful; it should be, as a reward for such a climb.

But none of these blood brothers of *Heliocereus ignescens* have a trace of the blue flame

which burns forever in his heart and has given him a thousand generations of iridescent children. The Blue Flame!

Do you recall the flame of the Bunsen burner on your high desk in Chem. Lab.? You could see through it, but beware if your hand forgot the gas was lighted. It was blue—perfect ignition—not red. A similar blue, violet or amethystine flame plays over and mantles the parent *H. ignescens*' gaudy carmen coat. It is the mysterious shimmer of blue which dazzles the eye when observing his lustrous daughters.

"Where do you turn the light on?" asked Bobby, aged seven, peering into the luminous center of a twelve inch bloom of the hybrid *Epiphyllum peacockii*, then twisting his head to study the stem.

"It ain't a flashlight—" answered Barbara, the eight year old, dancing with joy. "There's a little candle in all those flowers!"

"They're fierce!" was Bobby's final accolade, as he turned unwillingly away.

E. peacockii is truly fierce. He is one of the comparatively few hybrids who carried over the triangular stem of *H. ignescens*. There is a small bundle of attenuated appressed spines at every notch of the brittle stem or branch, which puts him out of the class of personal or intimate adornment of the American girl. He may, however, be safely attached to an out-of-door coat. His flowers are so ravishly beautiful they justify armature.

This flower is hard to describe because of its varied brilliant hues. The short and heavy bud opens flat to a ten-inch width, showing broad petals shading from orange, through scarlet, to carmen. The overlapping petals lighten in color toward the center, which is a deep chamber of opalescence. From the edge of the tube streams a bundle of delicate filaments enclosing the style. Over the whole, hovers the blue or violet shimmer, the rare pigmentation from *H. ignescens*. The branching stems are triangular, three ribbed, spiny, and brittle. The young growth is tipped with rose for several inches, and light green.

Most of the *Epiphyllum* hybrids are flat stemmed, thick, medium to dark green, naturally pendent, and very much elongated, to five or six feet, or longer. They are usually spineless. The early hybrid *Epiphyllum Jenkinsonii* has stems

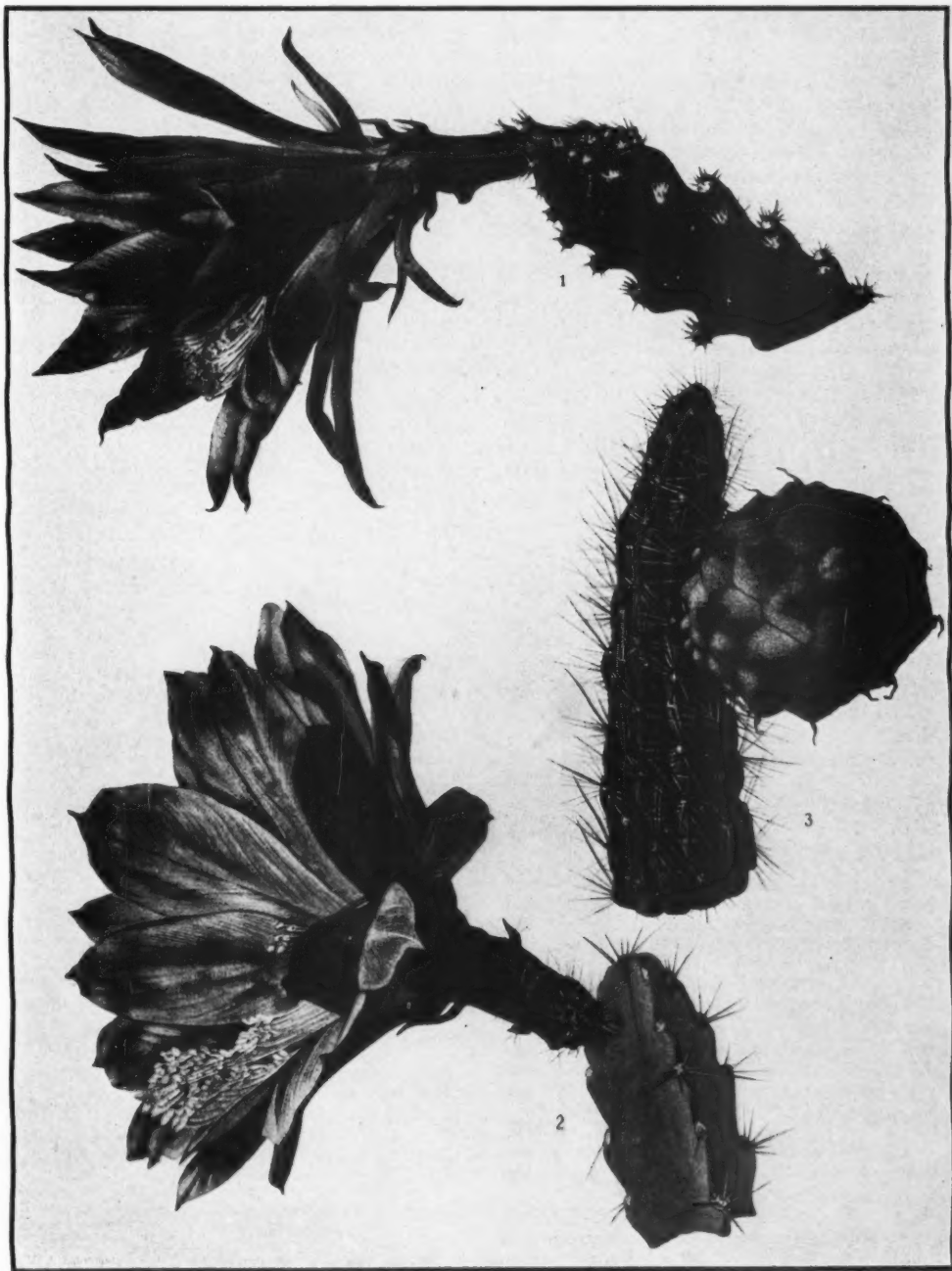


FIG. 12. (1) End of flowering branch of *Heliocereus elegantissimus*; (2) End of flowering branch of *Heliocereus speciosus ignescens*. About $\frac{2}{3}$ natural size. Reproduced from colored plate XVII, Vol. II, Britton & Rose.

3-angled at base, but flattened above, flowers deep red with a violet eye, and purple fruit. [G. Don, 1834.]

So we find most Epiphyllum hybrids are flat stemmed plants,—thick, husky, dark green, much elongated, which, while accepting the marvelous mingled hues of the predominant parent, only occasionally revert to triangular stems, and still less often to his armature.

Overcome by the amazing paintbox colors of this swaggering cacique, early hybridizers exhausted adjectives in naming them, adjectives not in the least descriptive, such as—superbus, gloriosus, elegans and triumphans. Modern appreciation is more definitive and alluring.

Note Monmonier's "Neon," "Flamingo," and "Dusky Girl;" Poindexter's "Luiva" and "Thundercloud;" the "Firefly," "Phosphor," and "Volcano" of Clarian Steel. At Coolidge's we find "Desert Sunrise" and "Dragons Eyes." Ventura announces a new Peacockii for 1942, Pava de Ora, or the Golden Peacock.

The hybrids named are but a few of the lustrous rainbow-dyed children of *Heliocereus ignescens*, every one of them showing at least a glint of the blue flame that betrays their ancestry. The colors on the palette have run, until some blooms show a play of light opaline tints only, overlaid with a shimmer of amethyst that simply cannot be identified as illusion or delusion. Or there may be such an intensification of color to deep purple and black-red, as to justify the names "Pluto" and "Thunder Cloud," or the imported "Doctor Werdermann," said to have large petals "of deep cobalt violet," shading to light violet edged with white.

Here are the names of the best known, largest, broad petaled and gloriously hued hybrids, to date: Adonis, Amber Queen, Conway's Giant, Gloria, Hermosissimus, Jenkinsonia, Orion and Sun Goddess.

There are several uses for these scintillating beauties. They are the topaz, passionate rubies and star sapphires of the spring Flower Exhibits. As advertisements it is said, we quote, "a flowering Epiphyllum hybrid in a florist's window will stop the traffic."

To bring the radiance of the jungle to the dinner table, their beauty is surpassed only by the lovely hostess and her women guests. But should the hostess wish to be sufficiently jeweled, let her wear one of these hybrids as a corsage and personify the warm and fragrant jungle, or the majesty of the arctic Aurora.

There is an art in severing the flower for gift, or adornment. Do not break it off, but cut it with an inch or more of the stem from which

it is dependent. With this fragment of stem, the flower can be secured to the frock. The petals have substance to outlast even a dancing party. The stem, if dried, will root quite readily, doubling the value of the gift and enchanting the recipient.

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GROWTH CHARACTERISTICS OF CACTI

Perhaps some additional explanation should be made with respect to the two specimens of *Echinocereus grusonii* shown in the April (1941) number of the JOURNAL and commented upon by Mr. Leon Croizat in the November number. It was not intended to attribute the difference in the two seedlings to the quality of the air, but rather to the relative amounts of sunlight received. It is quite true that seedlings of the same age may differ as greatly in size even when grown under apparently identical conditions, but the elongated, clavate form of the smaller plant is entirely characteristic of many of the globular types when grown without sufficient sunshine. The difference in the size of the pots is the result, and not the cause, of the inequality in the plants, since both were started in small pots, the larger being repotted from time to time as it outgrew its quarters. When moved out of doors (in the same pot), the small plant soon assumed a normal shape and rate of growth.

Of course not all species of cactus, even of those which naturally grow in the open, are equally affected by a reduction in sunlight. For example, a five-year-old seedling of *Euphorbia sericata*, which has continuously stood in a south window where it receives little if any sunshine during the spring and summer, bears a luxuriant growth of hair and appears in perfect condition, lacking the unsightly yellowish areas which disfigure those which are kept outside. All kinds of seedlings seem to thrive in the window for their first year, but after a year or two, many of them begin to shoot upward as if in search of light, and to show an abnormally weak and sparse spination. Undoubtedly this would not occur if they were under glass where they received the vertical rays of the sun.

Anyone who has grown a large number of species of cactus from seed, and in quantities small enough to permit following the careers of the individual plants, must be mystified by the inexplicable variations in the rate of growth, not only as between plants, but in the same individual. Frequently in a group of year-old seedlings in the same pot, some plants will be several times the size of others, without reference to the amount of room available to them. The future of the stunted plants is uncertain; some gradually shrink up and die, others continue growth at the same slow rate, while an occasional one will suddenly spring into action after two or three years and overtake or even surpass its less temperamental mates. In certain cases the slow-growing individuals seem to be superior in hardness or resistance to rot, perhaps because the slow growth produces firmer and less succulent tissues. Of nine seedlings of *Escontria chioiilla* started in 1935, eight grew vigorously, but fell victims to decay in their second year, one even after being grafted on another species. The one runt of the family, however, is still alive and healthy, though less than five inches in height.

Occasionally, in a crop of seedlings, the aberrant individual will not be a runt, but a plant which grows at a much faster rate than the others. There are often equal differences in the appearance of the plants, as to their perfection of form and color. All these examples of variability demonstrate the difficulty of properly judging the merits or characteristics of a species from one or two specimens, no matter how favorable the conditions under which they were grown.

Some of the *Cereanae*, such as *Pachycereus pringlei*, when grown in cultivation in southern California, have two well defined growing periods, one in the spring, the other in the fall. These plants seem as fully dorm-

ant in the summer as in the winter, even when watered regularly. Individual cacti also sometimes take rest periods of from one to several years, during which there is no sign of growth. After an intermission of this sort they will often resume growth in the spring in a perfectly normal manner. Such cessations of growth are most likely to occur when cacti have been dug up and moved, but they may take place when the plants have not been disturbed or neglected in any way. As an instance, two seedlings of *Notocactus Leninghausii* were raised from a small packet of seeds planted in 1935. After a year or so, one ceased to grow and the other became several times its size; then the small one started into rapid growth and the larger one stopped, so that their relative sizes are now reversed. In none of the cases observed has the resumption of growth been brought about by repotting or fertilizing, but apparently by some stimulus within the plant itself.

ROBERT S. WOODS.

THE CACTUS AND SUCCULENT CLUB OF CHICAGO

A Six Months' Summary of Our Activities:

On June 8th we made a field trip to see and study the famous Blocher cactus and succulent collection at Amboy, Illinois. The weather co-operated and we all enjoyed the day. Kodachrome movies were taken by yours truly, also many still snaps were taken by various members.

Our regular meeting was held at the home of Mrs. P. L. Akins, on June 10th. Here we studied the lovely cacti, which our hostess raised from seed. We approved the very nice summer greenhouse for which Mr. Akins was responsible. Mrs. Akins has an outstanding Mammillaria collection.

Our July meeting was held at the home of our President, Mrs. Hunter. Prof. Arthur Blocher of Amboy was our guest and ably assisted our delegates in giving their reports of our Big Convention at St. Louis.

At the August meeting, we were very happy to have as our guests, Mr. Lad Cutak and his family. He showed us beautiful colored slides of his trip to Mexico.

Yours truly showed a reel of Kodachrome movies of the Convention.

Our big feature in September was a Cactus Market to raise money for a typewriter to be used in the making of our monthly Club Bulletin. Mrs. E. Radden, as Chairman of our Committee for this purpose, did a splendid job. Thanks and more thanks, Mrs. Radden.

A most interesting trip was made to Milwaukee, Wisconsin, by Mrs. Akins, Mrs. Radden, Mr. Wm. Reedy (of McComb, Mississippi) and yours truly. Mr. Max Jaehnert took charge of us, and under his guidance we visited the following cacti collections: Mr. Jaehnert's—we agreed it surpassed any we had ever seen—Mr. Casten Buchloz's, Mr. Phil Olson's, Mr. Pat White's, Mr. Wiegand's. We can never forget the wonderful visit with our Milwaukee cactophiles. We took many pictures to show the friends "back home."

For our November meeting, Prof. Blocher, accompanied by his father, drove in to our city and presented some 800 feet of Kodachrome movies. The subject was the 1941 trip to Mexico taken in August, by Prof. and Mrs. Blocher. This was a fine lecture and we sincerely hope Prof. Blocher will find time to write a detailed article of the trip for our Journal.

December always means a Big Christmas Party. Ours was given in royal fashion at the spacious, lovely home of Mrs. J. Kaskia. Mrs. Akins presented a nice cactus seedlings to each one present.

MRS. HARRY N. OSGOOD,
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F. R. M.

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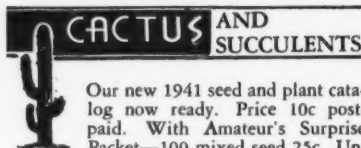
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